

# H2020 EPICEA PUBLIC WORKSHOP 13 JUNE 2019

ELECTROMAGNETIC PLATFORM FOR LIGHTWEIGHT  
INTEGRATION/INSTALLATION OF ELECTRICAL  
SYSTEMS IN COMPOSITE ELECTRICAL AIRCRAFT

## MOCK-UP CAD MODEL PRESENTATION

OFFICE NATIONAL  
D'ETUDES ET DE  
RECHERCHES  
AEROSPATIALES  
(ONERA)

Toulouse, France

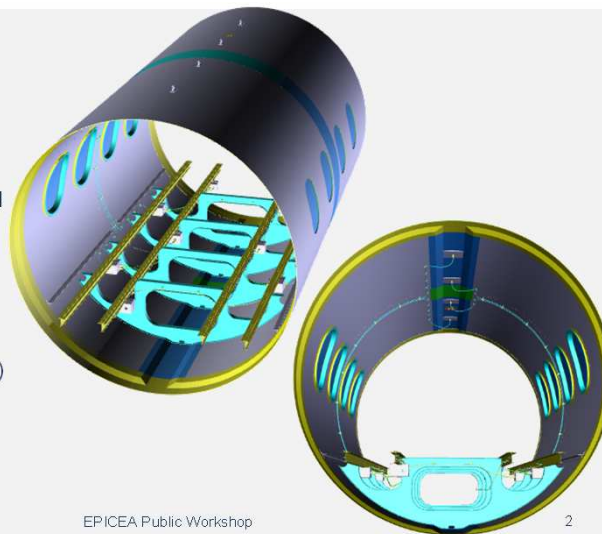
Speaker: Fabio  
Milani, IDS



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## SIMULATION STARTING CAD MODEL (BA)

- Items updated
  - Bulkheads
  - Antenna holes
- Items added
  - Caps
  - Braids between caps and HCR and HSG beams
  - Composite floors
  - Vertical frames and related grounding braids
  - Antenna grounding braids (to vertical frames)



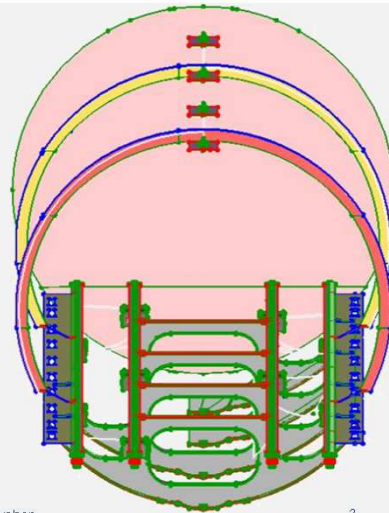
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## SIMULATION CAD MODEL UPGRADE OVERVIEW

- Changes applied by IDS
  - Inclusion of the missing parts in the original CAD model and update of some original items
    - 2 metal caps + braids to SG and CR structures
    - 2 vertical metal frames + braids to side composite floors
    - 2 sides composite floors
    - Structural braids for CR units
    - 2 modified bulkheads
  - Antenna grounding braids
  - Antenna holes (new position with respect to the original CAD model)
  - Cable routes according latest topology provided

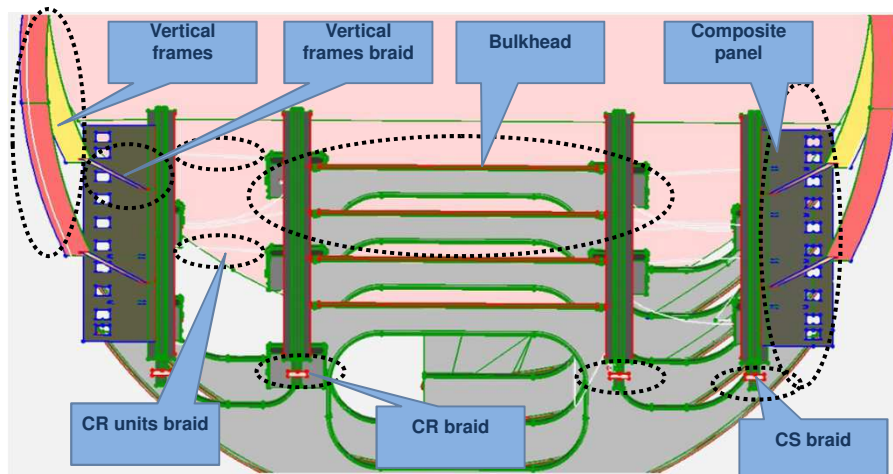


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## SIMULATION CAD MODEL UPGRADE CLOSE UP



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## SIMULATION CAD MODEL UPGRADE CLOSE UP

Added VSG, side composite panels and connections between side panels and VSG

The image displays a 3D CAD model of a curved structure. On the left, a top-down view shows two vertical support structures connected by two curved arches, one colored red and the other yellow. On the right, a perspective view shows a cross-section of the structure, highlighting the integration of a Vertical Slotted Grid (VSG) with side composite panels. A red arrow points to the connection area between the panels and the VSG. A bottom view shows the base of the structure with yellow and red components.

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## SIMULATION CAD MODEL UPGRADE CLOSE UP ON BEAMS BRAIDS

Added braids between caps and HCR and HSG beams

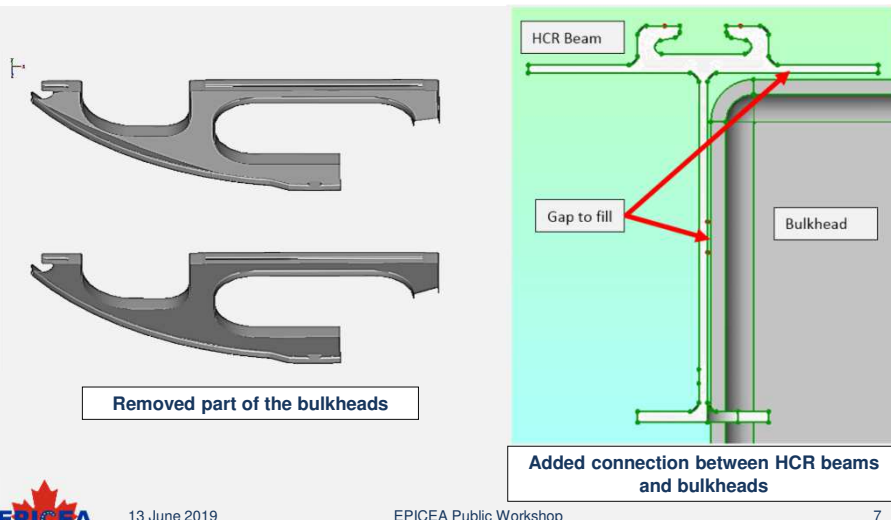
Bonding

Current flow

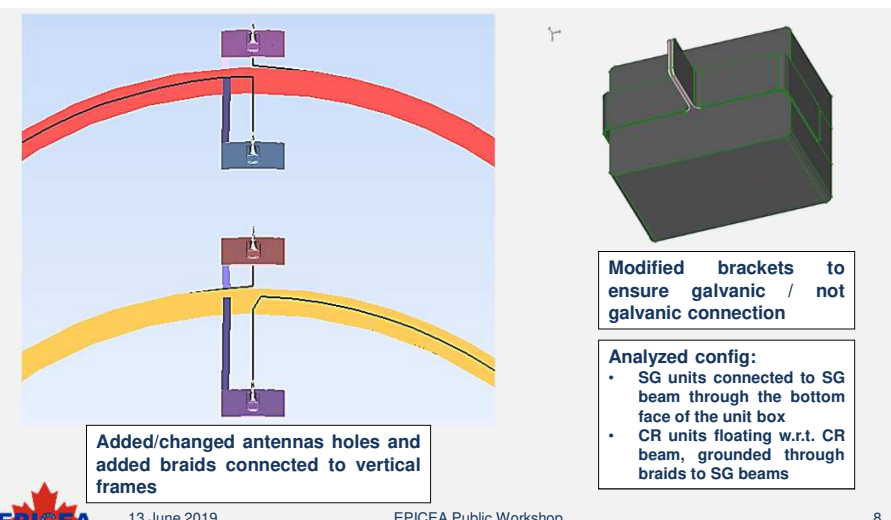
The image shows a 3D CAD model of a beam structure. On the left, a perspective view shows several green braided cables being inserted into a dark brown cap. On the right, a top-down view of the beam structure shows two vertical beams with yellow mesh braids wrapped around them. Red circles highlight specific connection points. Labels 'Bonding' and 'Current flow' are present at the bottom right of the diagram.

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## SIMULATION CAD MODEL UPGRADE *CLOSE UP ON BULKHEAD*



## SIMULATION CAD MODEL UPGRADE *UNITS GROUNDING*





## THANK YOU FOR YOUR ATTENTION! ANY QUESTION?





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## THANK YOU



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